CS-499-X2150

Computer Science Capstone – Enhancement Two

Algorithms and Data Structure

Miguel Ovalles

Southern New Hampshire University

The artifact I selected for my second enhancement and for the algorithms and data structure was the final project I completed during my IT-145 course in 2018. The program is a java-based program that is set up for authenticating zoo employees. It is also the same program I selected for my first enhancement. When the program is executed it will prompt a user to log in and if the user does not quit the program initially, the user’s entered username is verified via a credentials file. When I initially completed the program, it was set to run and confirm the user’s credentials in a text file. I found that it was not the best manner to store the data or the most efficient. In deciding what updates to make for this program for this part of the enhancements, I decided it was more efficient and better practice to use a spreadsheet style file to store the data and to read from it. I then decided to use a csv file for this. I was able to use four separate columns to store the username’s, the md5 hash info, the user’s passwords and their assigned role. When the user successfully logs in the, program reads the assigned role for the user from the credentials file, then scans for a file with the same name as the role after the .txt extension is trimmed and then displays the stored text from the role file on the screen for the user. The user is then prompted to select whether they want to stay logged in or not after successfully logging in.

Updating this artifact in this manner allowed me to show the skills I learned during the course. I was able to review the previous program I created and worked on some time ago and be able to decipher and understand what I did, thanks to my added comments and files. I was able to interpret what I had done, successfully review the program and determine what I found to be a more efficient manner of having the program execute. I originally overthought the complexity and efficiency of the program and considered re-writing the main zooAuthentication program and re-organizing the classes and execution. I decided not to do that, as I liked and preferred the way I already had it and found the flow of the program adequate. I reviewing the program I remembered the use of the text file and thought that it wouldn’t be practical to add and manage users and their credentials in a text file unless the program wrote into the file itself. That is when I decided to update the credentials file into a spreadsheet and replicated the “columns” from the text file into actual columns in the csv spreadsheet. I then make the necessary updates to the program to look at the csv file by updating the file name and the scanning part that previously had .txt as it searched. I also needed to update the credReview.split section of the program to have “,” instead of the previous “\t”. This allowed the program to accurately access and scan the csv credentials file. I added appropriate comments to reflect the change that occurred.

I believe I met the course objectives with this enhancement. The point was to make the program more efficient or to make it more complex. I feel that I made both. I made it more efficient by storing the credentials in a more organized and easily updated manner. I also made it more complex by changing the extension of what the program was previously looking for.

The main issue I faced was trying to decide what to update. As most IT professionals do, or as I have found they do, they go to the most complex manner of completing something first, before considering the simpler path. I overthought it and went right to complex. I reviewed the program a few times before deciding what actions to take. The second issue I faced was loading the program into NetBeans. I could not remember how we had previously set NetBeans up and had issues getting the program to load, build and run. I figured it out after a few tries. After that, I just had to test the program out and troubleshoot the errors I received until I figured out what needed to be updated. Aside from updating the credentials file extension to look for I had to make an update to another row of code that was expecting the text file. Once I updated that, the program ran successfully. I learned to use notes and guides I have or are available to remember and accurately use a tool. We may not always use an application or tool often. We can easily forget how to use them. We can use these guides to help us in our work in school and professionally. The artifact was improved since the efficiency was improved by using a better option for storing information in a cleaner more readable manner.

Miguel